

CLAIMS

1. In an ultrasound machine for generating an image responsive to moving cardiac structure and blood within a heart of a subject, a method comprising:

locating at least one anatomical landmark within the cardiac structure and generating position information of said at least one anatomical landmark;

locating at least one clinically relevant location within the heart based on said position information of said at least one anatomical landmark; and

extracting clinically relevant information from said at least one clinically relevant location within the heart.

2. The method of claim 1 further comprising displaying said clinically relevant information on a display of said ultrasound machine.

3. The method of claim 1 further comprising displaying indicia overlaying said at least one clinically relevant location on a display of said ultrasound machine.

4. The method of claim 1 wherein said at least one anatomical landmark comprises at least one of an apex of the heart and an AV-plane of the heart.

5. The method of claim 1 wherein said at least one clinically relevant location comprises at least one of lower parts of basal segments of the heart, lower parts of mid segments of the heart, at least one complete myocardial segment of the heart, at least one chamber of the heart, and at least one boundary between at least two chambers of the heart.

6. The method of claim 5 wherein said locating at least one clinically relevant location includes performing edge detection of said at least one myocardial segment of the heart to locate endocardium of said at least one myocardial segment.

7. The method of claim 1 wherein said clinically relevant information comprises at least one of Doppler profile information, velocity profile information, strain rate profile information, strain profile information, M-mode information, deformation information, displacement information, and B-mode information.

8. The method of claim 1 wherein said extracting includes presetting at least one M-mode with respect to said at least one anatomical landmark and said at least one clinically relevant location.

9. The method of claim 1 wherein said extracting includes presetting at least one Doppler sample volume with respect to said at least one anatomical landmark and said at least one clinically relevant location.

10. The method of claim 1 wherein said extracting includes presetting a region-of-interest (ROI) with respect to said at least one anatomical landmark and said at least one clinically relevant location.

11. The method of claim 1 further comprising tracking said at least one anatomical landmark in position while performing said locating at least one clinically relevant location and said extracting clinically relevant information.

12. The method of claim 1 further comprising tracking said at least one clinically relevant location in position while performing said extracting clinically relevant information.

13. In an ultrasound machine for generating an image responsive to moving cardiac structure and blood within a heart of a subject, an apparatus comprising:

a front-end arranged to transmit ultrasound waves into the moving cardiac structure and blood and to generate received signals in response to ultrasound waves backscattered from the moving cardiac structure and blood;

at least one processor responsive to said received signals to locate at least one anatomical landmark within the moving cardiac structure and generate position information of said at least one anatomical landmark, locate at least one clinically relevant location within the heart based on said position information of said at least one anatomical landmark, and extract clinically relevant information from said at least one clinically relevant location within the heart.

14. The apparatus of claim 13 further comprising a display processor and monitor to process said position information and display indicia overlaying at least one of said at least one anatomical landmark and said at least one clinically relevant location.

15. The apparatus of claim 13 further comprising a display processor and monitor to process and display said clinically relevant information.

16. The apparatus of claim 13 wherein said at least one anatomical landmark comprises at least one of an apex of the heart and an AV-plane of the heart.

17. The apparatus of claim 13 wherein said at least one clinically relevant location comprises at least one of lower parts of basal segments of the heart, lower parts of mid segments of the heart, at least one complete myocardial segment of the heart, at least one chamber of the heart, and at least one boundary between at least two chambers of the heart.

18. The apparatus of claim 13 wherein said clinically relevant information comprises at least one of Doppler profile information, velocity profile information, strain rate profile information, strain profile information, M-mode information, deformation information, displacement information, and B-mode information.

19. The apparatus of claim 13 wherein said at least one processor comprises at least one of a Doppler processor, a non-Doppler processor, a control processor, and a PC back-end.

20. The apparatus of claim 13 further comprising at least one transducer connected to said front-end to convert electrical signals to said ultrasound waves and vice versa.

21. The apparatus of claim 13 further comprising at least one user interface connecting to said at least one processor to control operation of said ultrasound machine.